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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/634,882	08/06/2003	Kunishige Miyoshi	116805	7531

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EXAMINER

FEELY, MICHAEL J

ART UNIT PAPER NUMBER

1712

DATE MAILED: 10/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/634,882

Applicant(s)

MIYOSHI, KUNISHIGE

Examiner

Michael J. Feely

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2. Claims 1, 5, and 6 are rejected under 35 U.S.C. 102(a) as being anticipated by Usui (JP-2003-040662). Citations are directed towards the machine translation provided by the JPO website.

Regarding claims 1, 5, and 6, Usui discloses: *(1)* a paste coating composition for reinforcing concrete (Abstract; paragraphs 0010-0023) comprising: (A) an epoxy resin (Abstract; paragraphs 0010 & 0026); (B) a first fiber composed of a ceramic fiber (Abstract; paragraphs 0010 & 0030-0034); (C) a second fiber selected from the group consisting of a carbon fiber, an aramid (*aromatic polyamide*) fiber, a polyketone fiber and a glass fiber (Abstract; paragraphs 0010 & 0030-0034); and (D) a pigment (paragraphs 0016 & 0036);

(5) wherein the composition comprises: (A) an epoxy resin (Abstract; paragraphs 0010 & 0026); (B) a first fiber composed of a ceramic fiber (Abstract; paragraphs 0010 & 0030-0034); (C-4) a glass fiber (Abstract; paragraphs 0010 & 0030-0034); and (D) a pigment (paragraphs 0016 & 0036); in which contents of components (B) and (C-4) are 1.2 to 5% by weight and 2 to 10% by weight based on the weight of component (A), respectively (paragraphs 0032-0033); and

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(6) a concrete structure, in which the paste coating composition for reinforcing concrete according to claim 1 is applied to a surface of the concrete structure in a coat thickness (dried coat thickness) of 0.8 to 1.55 mm (Example 1 & 2: paragraphs 0050-0056).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Usui (JP 2003-040662).

Regarding claim 2, Usui does not explicitly disclose a viscosity range 10,000 cps to 35,000 cps. However, Applicant fails to show criticality for this range. Furthermore, Usui discloses that when the fiber loading is above 3-10%, the viscosity will be too high causing poor workability, and when the fiber loading is below 3-10%, the reinforcement effectiveness is not demonstrated – *see paragraph 0032-0033*.

The teachings of Usui demonstrate that fiber loading, and in turn viscosity, is a result effective variable. In light of this, it has been found “[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation,” – *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955); and, “A particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or

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workable ranges of said variable might be characterized as routine experimentation,” – *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to optimize the viscosity of Usui’s composition to a range of 10,000 cps to 35,000 cps because Applicant fails to show criticality for this range, and Usui demonstrates that the viscosity is a result-effective variable which ensures reinforcement effectiveness and workability of the composition.

5. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Usui (JP 2003-040662) in view of Morton (US Pat. No. 6,716,482).

Regarding claim 3, Usui discloses: (3) wherein the composition comprises: (A) an epoxy resin (Abstract; paragraphs 0010 & 0026); (B) a first fiber composed of a ceramic fiber (Abstract; paragraphs 0010 & 0030-0034); (C) a reinforcement fiber (Abstract; paragraphs 0010 & 0030-0034); and (D) a pigment (paragraphs 0016 & 0036); in which contents of components (B) and (C) are 2 to 5% by weight and 1 to 10% by weight based on the weight of component (A), respectively (paragraphs 0032-0033). However, Usui uses a *glass fiber* instead of (C-1) a *carbon fiber*.

Morton discloses a similar composition used as a wear-resistant reinforcing coating for concrete, wood, metal or particulate (*see Abstract*). His composition comprises reinforcement fibers added to a liquid matrix that is preferably a conventional translucent or transparent two-part epoxy resin that can optionally be dyed to an opaque or translucent color (*see column 2, lines 36-56*). The reinforcement fiber, “can be in the form of a mat (woven or non-woven) or

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individual fibers, such as short chopped fibers or long intertwined fibers. The fibers themselves can be made of *glass, carbon, synthetic, nylon, or any material that adheres to the cured matrix,*" (column 2, lines 57-61).

The teachings of Morton demonstrate carbon fibers and glass fibers are recognized in the art as known equivalent reinforcement fibers in epoxy-based coatings used to reinforce concrete materials. In light of this, it has been found that the substitution of equivalents known for the same purpose is *prima facie* obvious – see *MPEP 2144.06*.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to substitute glass fibers with carbon fibers, as taught by Morton, in the composition of Usui because the teachings of Morton demonstrate that carbon fibers and glass fibers are recognized in the art as known equivalent reinforcement fibers in epoxy-based coatings used to reinforce concrete materials.

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Usui (JP 2003-040662) in view of Morton (US Pat. No. 6,716,482) and Sato et al. (JP 2000-034841).

Regarding claim 4, Usui discloses: (4) wherein the composition comprises: (A) an epoxy resin (Abstract; paragraphs 0010 & 0026); (B) a first fiber composed of a ceramic fiber (Abstract; paragraphs 0010 & 0030-0034); (C) a reinforcement fiber (Abstract; paragraphs 0010 & 0030-0034); and (D) a pigment (paragraphs 0016 & 0036); in which contents of components (B) and (C) are 1.2 to 5% by weight and 1 to 7% by weight based on the weight of component (A), respectively (paragraphs 0032-0033).

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The teachings of Morton are as set forth above and incorporated herein. In addition to carbon fibers and glass fibers, Morton also demonstrates that *synthetic, nylon, or any material that adheres to the cured matrix* are recognized in the art as known equivalent reinforcement fibers in epoxy-based coatings used to reinforce concrete materials. However, they do not explicitly disclose that (C-2) *aramid fibers* or (C-3) *polyketone fibers* are among these equivalent reinforcement fibers.

Sato et al. disclose a reinforcing method and a reinforcing body for concrete structures, wherein short *aramid fiber, carbon fiber or glass fiber* are mixed with an epoxy adhesive. The epoxy adhesive is then used to impregnate a fiber sheet. The short fibers adjust the thixotropy, improve impregnability, and improve reinforcing strength of the epoxy impregnated fiber sheet (*see Abstract*). The nature of this invention is a bit different from the inventions of Usui and Morton; however, the teachings of Sato et al. demonstrate that *aramid fibers* are *synthetic fibers* and *a material that adheres to a cured epoxy matrix*. In light of this, it appears that in addition to the carbon and glass fibers, aramid fibers are also recognized in the art as known equivalent reinforcement fibers in epoxy-based coatings used to reinforce concrete materials.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to substitute glass fibers with aramid fibers, as taught by the combined teachings of Morton and Sato et al., in the composition of Usui because the combined teachings of Morton and Sato et al. demonstrate that aramid fibers, carbon fibers and glass fibers are recognized in the art as known equivalent reinforcement fibers in epoxy-based coatings used to reinforce concrete materials.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Miyoshi (JP 2003-119421) discloses the instant invention; however, the reference does not qualify as prior art: under 102(a) because it is applicant's own work; under 102(b) because it was not published more than a year prior to the effective filing date of the instant invention; and under 102(d) because the publication is not a patent.

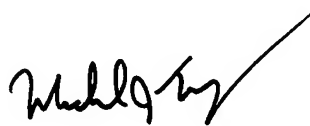
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Communication

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J. Feely whose telephone number is 571-272-1086. The examiner can normally be reached on M-F 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Michael J. Feely
Primary Examiner
Art Unit 1712

September 30, 2005